

HIDE THIS SLIDE

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HIDDEN SLIDE

12 October 2005

PREFACE IMPROVEMENTS

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Commander, USACHPPM, ATTN: MCHB-CS-OHP, 5158 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010--5403, or by using the E-mail address on the USACHPPM website at:
<http://chppm-www.apgea.army.mil/mtb/MedicalThreatBriefingPage.aspx>
- If you develop new slides or revise existing slides, please forward to USACHPPM for future updates of this briefing.
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Earthquake Relief Response Preventive Medicine Measures (Pakistan)

Name
Command
Contact Information

Prepared by:

U.S. Army Center for Health Promotion and Preventive Medicine
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Agenda

- Purpose
- Background
- Medical Threat
- Stress
- Post Deployment
- Summary
- Conclusion



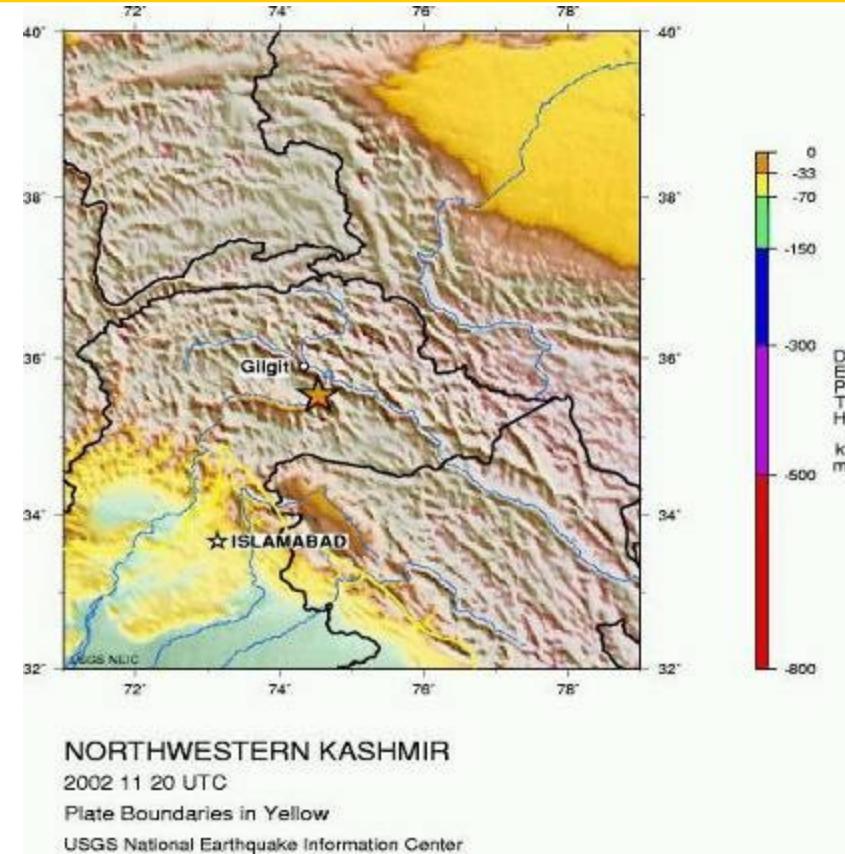
Purpose

Inform Deploying Personnel
(Military and Civilian) of the
Potential Health Hazards and the
Individual Countermeasures
Necessary to Assure Personal
Safety and Health



Background

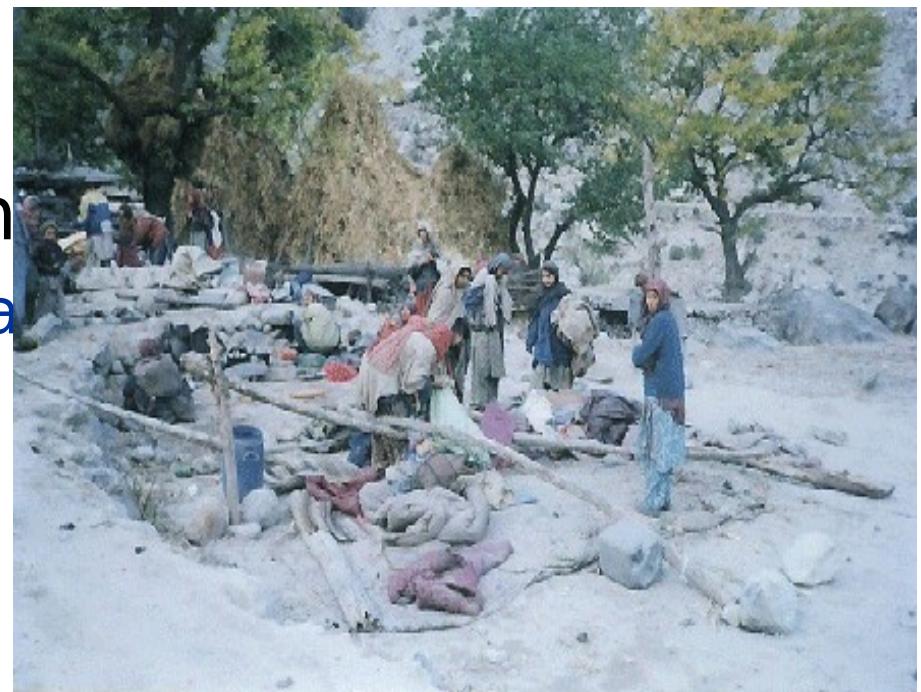
- US Forces are mobilizing and deploying in support of earthquake relief efforts
- Environmental and occupational health hazards are a potential medical threat to deployed



Earthquakes can cause catastrophic damage to property and the environment. Many hazards exist in the wake of an earthquake.

Health Risks Increase

- Extensive structural damage
- Health risks rise with
 - Lack of waste disposal
 - Contaminated food
 - Contaminated water
 - Inadequate water for hygiene
 - Increased exposure to the heat



**MANY VICTIMS ARE NOW LEFT
HOMELESS**

Pre-Deployment

- All Active Component (AC) personnel must complete a Pre-Deployment Medical Health Assessment (DD Form 2795)
- Reserve Component (RC) personnel activated to active duty status greater than 30 days must complete DD Form 2795. Only those RC activated for 30 days or less are exempt from completing the form.

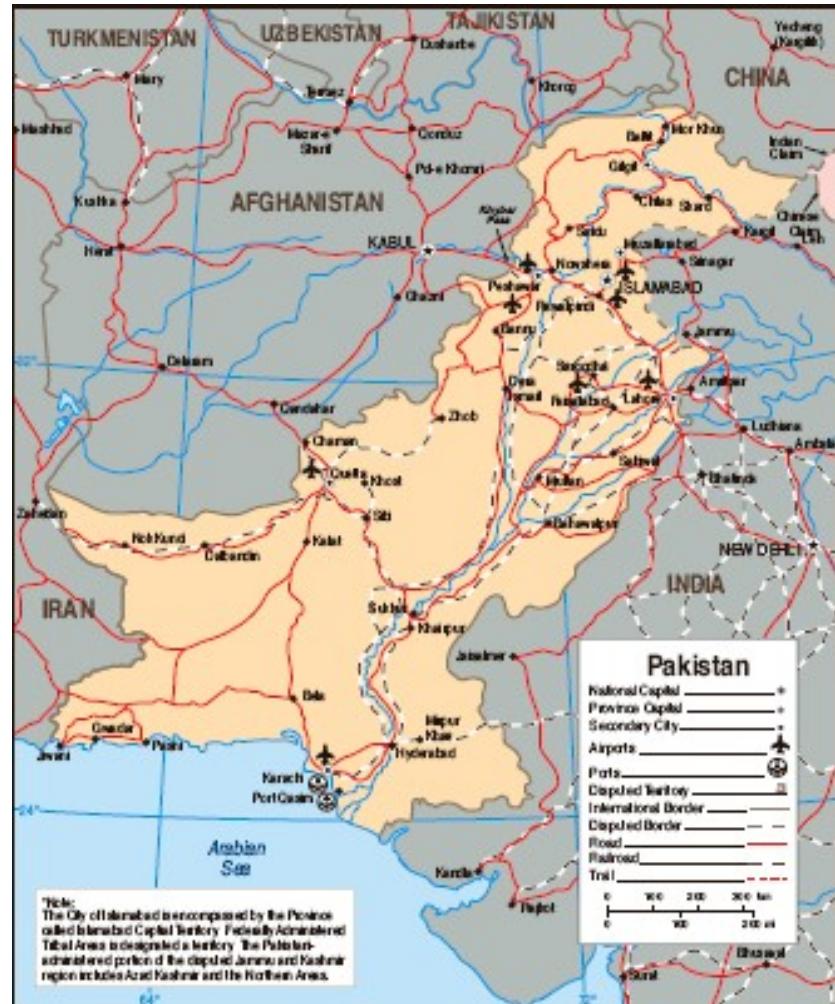
Military Vaccine Recommendations

- Tetanus-diphtheria (Td) if no booster within the past 10 years
- Hepatitis A
- Hepatitis B for those at risk with direct blood and body fluid exposures
- Influenza (during flu season)
- Typhoid



PAKISTAN

- Plagued by wars with India
- Nuclear testing
- Already deteriorated public health



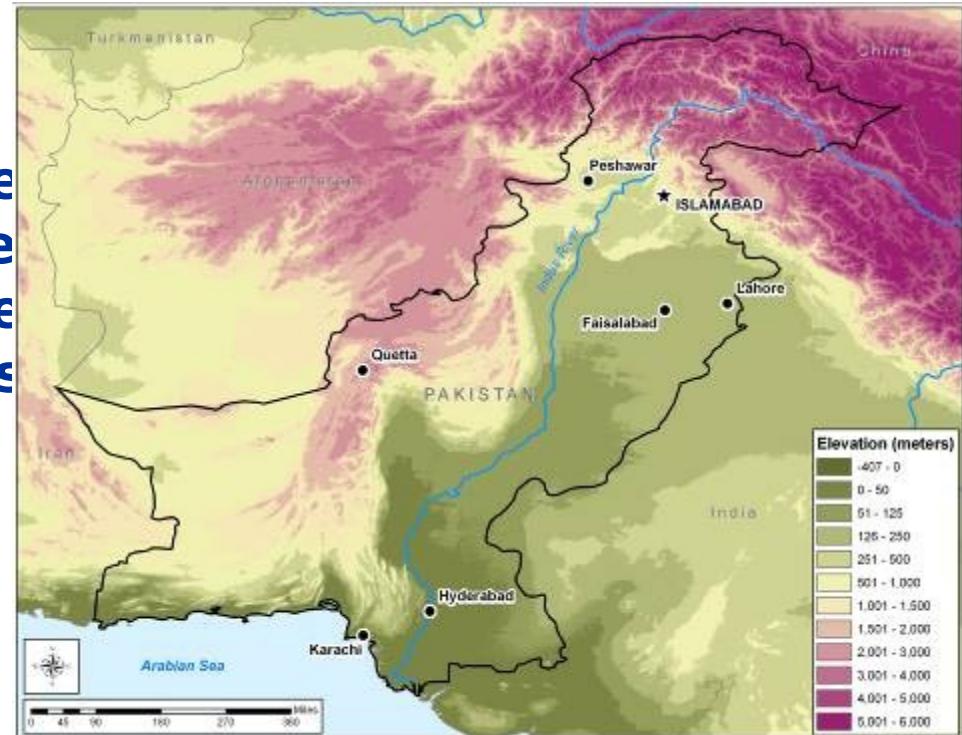
Physical Environment

- Topography
 - If operating above 6,000ft implement high elevation countermeasures

- Climate

Arid to semiarid; cold winters and hot summers

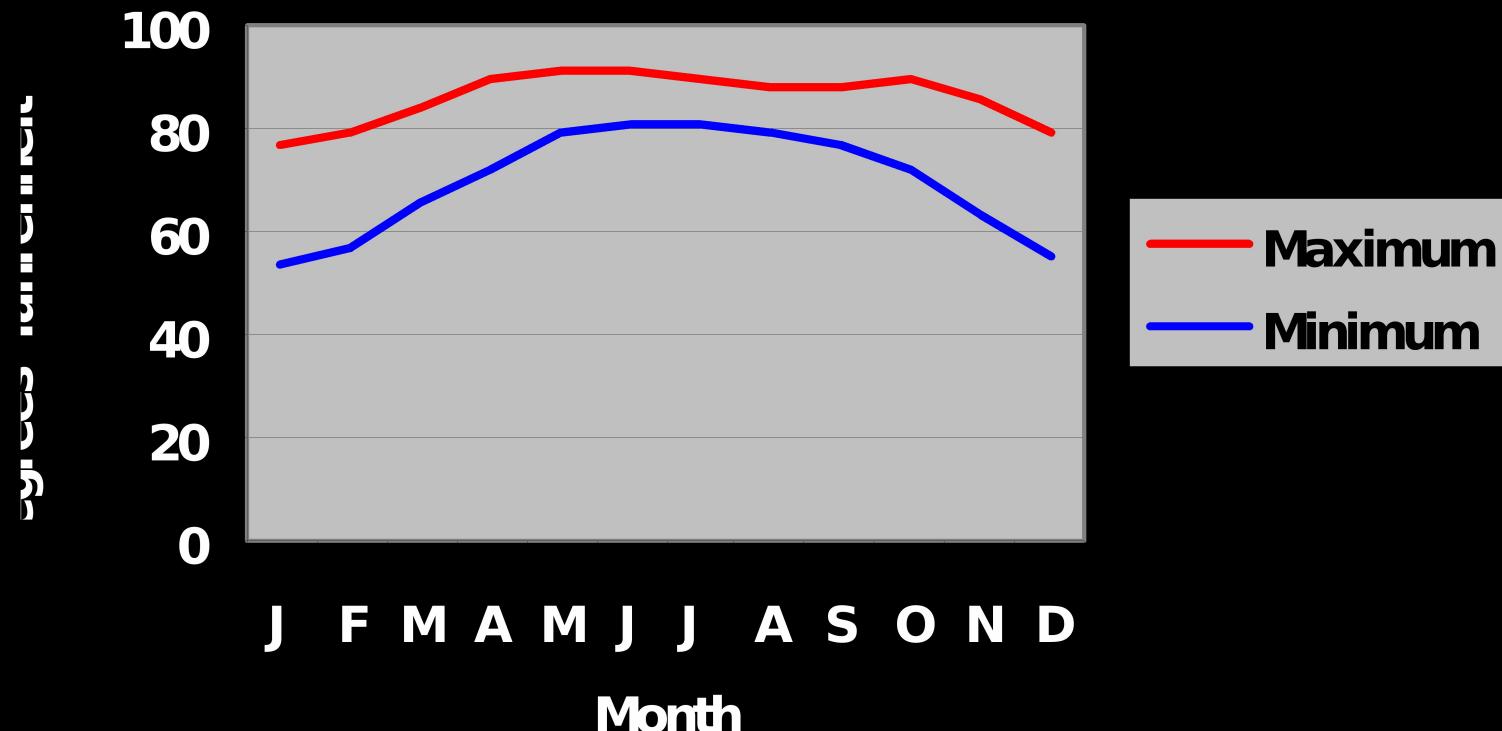
Terrain: mostly rugged mountains; plains in north and southwest



Northern highlands: 1/2 of elevations above 15,000ft
highest point: K-2 (Mt. Godwin Austin) at 28,413, world's

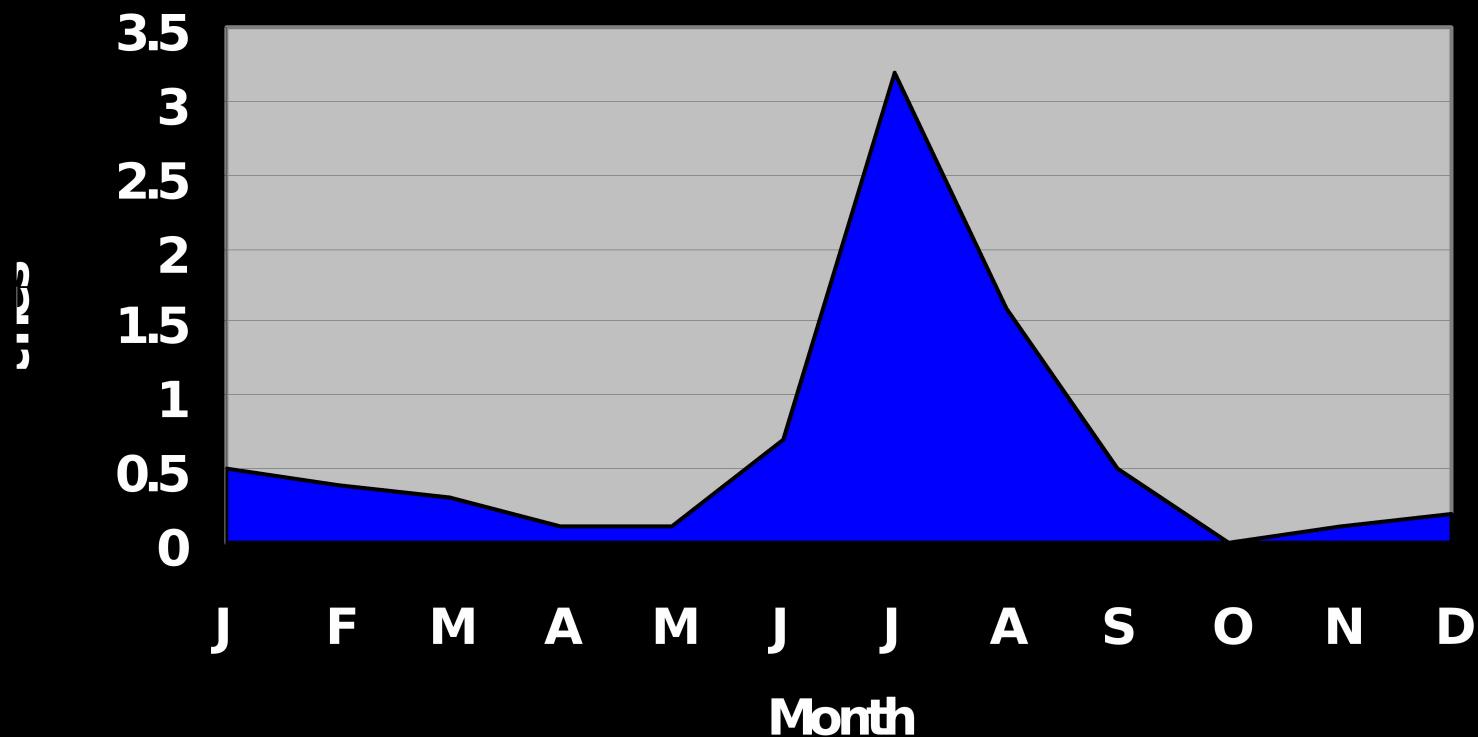
Physical Environment

Average Max/Min Temperature in Karachi



Physical Environment

Average Total Precipitation in Karachi



Heat Injury Prevention

- **Prevention is key to avoid heat injury**
- Heat Cramps, Exhaustion, or Stroke



COUNTERMEASURES

- Drink fluids continuously (hourly fluid intake should not exceed 1.5 quarts, daily fluid intake should not exceed 12 quarts)
- Maintain acclimatization
- Protect yourself from exposure to sunlight and wind
- Maintain good physical condition
- Establish work/rest schedules
- Wear proper clothing
- Participate in training



HEAT

H: Heat category – WBGT Index

E: Exertion level (prior 3 days)

A: Acclimatization

T: Tables – Water/Work/Rest



REMEMBER

Water requirements are not reduced by any form of training or acclimatization.

Work/Rest and Water Consumption Table

Applies to average sized, heat-acclimated soldier wearing BDU, hot weather. (See TB MED 507 for further guidance.)

Easy Work	Moderate Work	Hard Work
<ul style="list-style-type: none"> • Weapon Maintenance • Walking Hard Surface at 2.5 mph, < 30 lb Load • Marksmanship Training • Drill and Ceremony • Manual of Arms 	<ul style="list-style-type: none"> • Walking Loose Sand at 2.5 mph, No Load • Walking Hard Surface at 3.5 mph, < 40 lb Load • Calisthenics • Patrolling • Individual Movement Techniques, i.e., Low Crawl or High Crawl • Defensive Position Construction 	<ul style="list-style-type: none"> • Walking Hard Surface at 3.5 mph, ≥ 40 lb Load • Walking Loose Sand at 2.5 mph with Load • Field Assaults

Heat Category	WBGT Index, F°	Easy Work		Moderate Work		Hard Work	
		Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)	Work/Rest (min)	Water Intake (qt/hr)
1	78° - 81.9°	NL	½	NL	¾	40/20 min	¾
2 (GREEN)	82° - 84.9°	NL	½	50/10 min	¾	30/30 min	1
3 (YELLOW)	85° - 87.9°	NL	¾	40/20 min	¾	30/30 min	1
4 (RED)	88° - 89.9°	NL	¾	30/30 min	¾	20/40 min	1
5 (BLACK)	> 90°	50/10 min	1	20/40 min	1	10/50 min	1

For additional copies, contact: U.S. Army Center for Health Promotion and Preventive Medicine Health Information Operations Division at (800) 222-9698 or CHPPM - Health Information Operations@apg.amedd.army.mil.

For electronic versions, see <http://chppm-www.apgea.army.mil/heat>. Local reproduction is authorized.

June 2004

- The work/rest times and fluid replacement volumes will sustain performance and hydration for at least 4 hrs of work in the specified heat category. Fluid needs can vary based on individual differences ($\pm \frac{1}{4}$ qt/hr) and exposure to full sun or full shade ($\pm \frac{1}{4}$ qt/hr).

- NL = no limit to work time per hr.
- Rest = minimal physical activity (sitting or standing) accomplished in shade if possible.

- **CAUTION: Hourly fluid intake should not exceed 1½ qts.**

Daily fluid intake should not exceed 12 qts.

- If wearing body armor, add 5°F to WBGT index in humid climates.
- If doing Easy Work and wearing NBC (MOPP 4) clothing, add 10°F to WBGT index.
- If doing Moderate or Hard Work and wearing NBC (MOPP 4) clothing, add 20°F to WBGT index.



COLD INJURY PREVENTION

- Hypothermia, Frostbite, Chilblains

COUNTERMEASURES

- When possible, remain inside warming tents/buildings and drink warm, un-caffeinated liquids for relief from the cold
- If working outside or on guard duty, insulate yourself from the ground and wind. Rotate duty as frequently as mission allows.
- Properly wear the Extended Cold Weather Clothing System



You should receive annual unit training on prevention of cold injury

COLDER

- C:** Keep clothing Clean
- O:** Avoid Overheating.
- L:** Wear clothing Loose and in layers
- D:** Keep clothing as Dry as possible
- E:** Examine clothing (holes, tears, broken fasteners)
- R:** Repair or replace damaged clothing



Notify your first-line supervisor if you have had a previous cold injury. Use the buddy system.



Wind Chill Chart



		Temperature (°F)																		
		Calm	40	35	30	25	20	15	10	5	0	-5	-10	-15	-20	-25	-30	-35	-40	-45
Wind (mph)	5	36	31	25	19	13	7	1	-5	-11	-16	-22	-28	-34	-40	-46	-52	-57	-63	
	10	34	27	21	15	9	3	-4	-10	-16	-22	-28	-35	-41	-47	-53	-59	-66	-72	
	15	32	25	19	13	6	0	-7	-13	-19	-26	-32	-39	-45	-51	-58	-64	-71	-77	
	20	30	24	17	11	4	-2	-9	-15	-22	-29	-35	-42	-48	-55	-61	-68	-74	-81	
	25	29	23	16	9	3	-4	-11	-17	-24	-31	-37	-44	-51	-58	-64	-71	-78	-84	
	30	28	22	15	8	1	-5	-12	-19	-26	-33	-39	-46	-53	-60	-67	-73	-80	-87	
	35	28	21	14	7	0	-7	-14	-21	-27	-34	-41	-48	-55	-62	-69	-76	-82	-89	
	40	27	20	13	6	-1	-8	-15	-22	-29	-36	-43	-50	-57	-64	-71	-78	-84	-91	
	45	26	19	12	5	-2	-9	-16	-23	-30	-37	-44	-51	-58	-65	-72	-79	-86	-93	
	50	26	19	12	4	-3	-10	-17	-24	-31	-38	-45	-52	-60	-67	-74	-81	-88	-95	
	55	25	18	11	4	-3	-11	-18	-25	-32	-39	-46	-54	-61	-68	-75	-82	-89	-97	
	60	25	17	10	3	-4	-11	-19	-26	-33	-40	-48	-55	-62	-69	-76	-84	-91	-98	

Frostbite Times

30 minutes

10 minutes

5 minutes

$$\text{Wind Chill (°F)} = 35.74 + 0.6215T - 35.75(V^{0.16}) + 0.4275T(V^{0.16})$$

Where, T = Air Temperature (°F) V = Wind Speed (mph)

Effective 11/01/01

WET SKIN CAN SIGNIFICANTLY DECREASE THE TIME FOR FROSTBITE TO OCCUR

13 October 2005

CARBON MONOXIDE

- Carbon monoxide (CO) is a colorless, odorless, and tasteless gas produced by engines, stoves, and gas/oil heaters.
- CO replaces oxygen in the body, causing headache, sleepiness, coma, and death.



COUNTERMEASURES

- Keep sleeping area windows slightly open for ventilation and air movement.
- DO NOT sleep in vehicles with the engine running or use engine exhaust for heat.
- DO NOT park vehicles near air intakes to tents, trailers, or environmental control units.

Do not use unapproved commercial off-the-shelf heaters. Check with your unit Safety Officer.

Physical Injury



- Physical injury is usually the top diagnosis during disaster relief efforts
- Walking over and handling debris can cause cuts, scrapes, bruises, sprains, etc.
- Remain current with tetanus vaccination – revaccinate for a dirty wound if current vaccination is over 5 years old
- Consider steel toe/shank footwear, safety goggles, leather gloves, etc., if available

Environmental Health Risk

- Greatest short term risks associated with ingestion of contaminated food/water; extreme heat/cold; airborne particulates; high altitude
- Greatest long term risks associated with air contamination and chemical contamination of food/water



Environmental Health Risk

- **Building collapse - mud slides**
- **Avoid contact with any standing water**
- **Ensure facilities are properly inspected prior to entry**
- **Identify, report and avoid ruptured natural gas lines**
- **Ensure adequate ventilation when using any carbon monoxide producing device (preferably outdoors)**
- **Building material hazards: asbestos, lead based paint, etc**
- **Dispose of waste properly - don't contribute to the problem**

Infectious Disease Risk

- **HIGH RISK** for infectious diseases
- Inadequate force health protection (FHP) measures, will seriously jeopardize mission effectiveness

Infectious Diseases

- Foodborne and Waterborne Diseases
 - **HIGH RISK** = Diarrhea, hep A & E, typhoid fever
 - **INTERMEDIATE RISK** = brucellosis, cholera
- FHP Priorities
 - **Deploy appropriate PM personnel and equipment**
 - Consume food, water, ice only from US-approved sources
 - Operate food preparation facilities in accordance with Army doctrine
 - Ensure proper hand washing facilities near all latrines and dining facilities and enforce

Infectious Diseases Cont.

- Vector-borne Diseases

- **INTERMEDIATE RISK** = Malaria, Dengue fever, Leishmaniasis, Chikungunya, Crimean-Congo fever, Japanese encephalitis, Rickettsioses, Sand-fly fever, Scrub typhus, West Nile fever

- FHP Priorities

- Use DEET on all exposed skin
 - Treat field uniforms with permethrin
 - Use bed nets in field conditions, treat with permethrin
 - **Enforce malaria chemoprophylaxis as appropriate**



PPM Against Insects

Flooding will increase the potential for the spread and transmission of mosquito-borne diseases



Permethrin
On
Uniform

DEET On
Exposed
Skin

Properly
Worn
Uniform

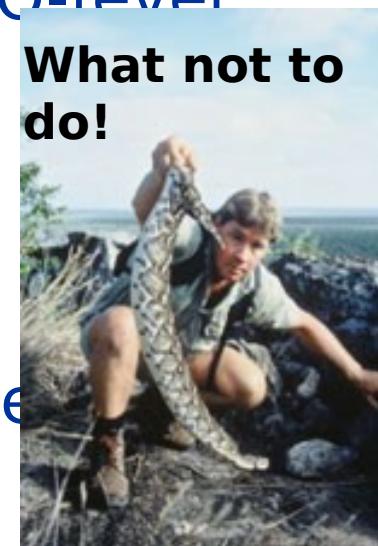
**MAXIMUM
PROTECTION**

DOD Insect Repellent System

YOU NEED TO KNOW...
Dry cleaning removes permethrin from the uniform

Infectious Diseases Cont.

- Animal-contact Diseases
 - **HIGH RISK** = Rabies, among the highest in the world
 - **INTERMEDIATE RISK** = Anthrax, Q-fever
- FHP Priorities
 - Avoid animal contact
 - No mascots
 - Report all animal bites and scratches



Infectious Diseases Cont.

- Sexually Transmitted Diseases
 - **INTERMEDIATE RISK** = gonorrhea, chlamydia, HIV, Hep B
- FHP Priorities
 - Avoid sexual contact
 - Use latex condoms if sexually active



Infectious Diseases Cont.

- Water-contact Diseases
 - **INTERMEDIATE RISK** = leptospirosis
- FHP Priorities
 - avoid unnecessary contact with lakes, rivers, streams, and other surface water

There will not be a sign like

WARNING!

LEPTOSPIROSIS

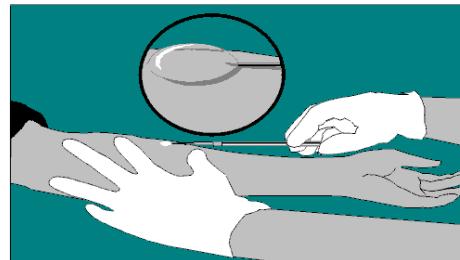
HEALTH HAZARD

FRESH WATER STREAMS AND MUD
POSSIBLY POLLUTED WITH BACTERIA

SWIM, BOAT,
OR HIKE AT YOUR OWN RISK

Infectious Diseases Cont.

- Respiratory Diseases
 - **INTERMEDIATE RISK** = tuberculosis, acute respiratory infection
- FHP Priorities
 - Tuberculin skin test before and after deployment
 - Avoid close contact with local population
 - Maintain at least 72 sq ft per person in sleeping quarters and sleep head to toe



Hazardous Animals & Plants

- Animals
 - Rabid dogs, snakes, centipedes, scorpions, spiders
- Plants
 - Mexican Poppy, Fetid Nightshade
- FHP Priorities
 - Do not handle animals
 - Shake out boots, clothing, & bedding
 - Do not touch, chew, eat, or burn unfamiliar plants



Handling Bodies of Victims

- Unburied human remains are not a disease threat
- Cadavers in the water supply rarely transmit diseases.
- Increased number of filth flies can increase diarrheal diseases.
- Mortuary staff, and body retrieval teams risk exposure to hepatitis B virus (HBV) and HIV
- For personnel exposed to blood and body fluids:
 - Use gloves when handling bodies or body fluids
 - Use eye protection, gowns, and masks when large quantities or splashes of blood are anticipated
 - Wash hands frequently
 - Use body bags to reduce the risk of contamination



Universal Precautions

- **Universal Precautions or Standard Precautions**
 - are the terms used to describe a prevention strategy in which all blood, potentially infectious materials, and respiratory secretions are treated as if they are, in fact, infectious, regardless of the perceived status of the source individual.
- In other words:
Whether or not you think the blood/body fluid is infected with bloodborne pathogens, you treat it as if it is.

Improve Resistance to Stress 1 of 2

- Remember the larger purpose of what you must do. You are showing care, giving hope, and preventing disease for the living. You are recovering the bodies for registrations and respectful burial.
- Limit exposure to the stimuli.
- Mask odors with disinfectants, deodorants, air-fresheners.
- AVOID FOCUSING on any individual victims.
- Have people who did NOT search the body examine any materials collected for identification of the body or intelligence.
- Remind yourself the body is not “the person,” just the remains.



Improve Resistance to Stress 2 of 2

- **Keep humor alive**
- **Don't desecrate or steal from the victims**
- **Schedule frequent breaks; maintain hygiene, drink plenty of fluids, and eat good food.**
- **Have your team get together for mutual support and encouragement.**
- **Help buddies or subordinates in distress by being a good listener.**
- **Prepare yourself for what you will see and do.**
- **Don't feel guilty about distancing yourself mentally from the suffering of individuals.**
- **Don't be disheartened by horrible dreams, feeling tense, or intrusive memories.**
- **Participate in a critical event debriefing with trained people from your supporting unit ministry and/or behavioral health/combat stress control team.**



Post-Deployment

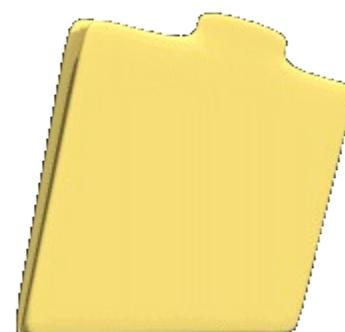
All AC and those RC personnel activated more than 30 days must:

- Complete Post-Deployment Medical Health Assessment (DD Form 2796)
- Receive post-deployment preventive medicine briefing
- Receive post-deployment screening, testing, and follow-up



Summary

- Background
- Physical Environment
- Medical Threat
- Stress
- Post Deployment



CONCLUSION

**"It is in periods of apparent disaster,
during the sufferings of whole
generations, that the greatest
improvement in human character has
been effected."**

Sir Archibald Alison
English Historian (1792-1867)





**Contact Your Local
Preventive Medicine
Service or Medical
Support Unit for
Additional Information**



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